

CLAIMS

WHAT IS CLAIMED:

1. A multi-sensor detector comprising:
at least one fire sensor;
at least one transducer for converting an incident acoustic signal to an electrical signal;
control circuits coupled to the at least one sensor and the electrical signal for establishing the presence for fire condition in the vicinity of the transducer, based at least in part on incident acoustic signals; and an interface for communication with a displaced monitoring system.
2. A detector as in claim 1 which includes a thermal sensor coupled to the control circuits.
3. A detector as in claim 1 where the control circuits include pre-stored fire profiles and circuitry for matching at least some of the electrical signals with at least one profile.
4. A detector as in claim 1 which includes pre-stored instructions for communicating, via the interface, information as to presence of a fire condition based in part on the electrical signal.
5. A detector as in claim 4 which includes instructions for fire profile processing to establish flame location.
6. A detector as in claim 4 which includes instructions for conveying received audio inputs from individuals in the vicinity of the transducers to the displaced system.
7. A detector as in claim 1 which includes instructions to alter a fire condition determining parameter in response to the electrical signal.
8. A detector as in claim 6 which includes instructions for altering a sensitivity parameter of the fire sensor in response to the electrical signal.

9. A detector as in claim 8 which includes a second sensor, coupled to the control circuits, for monitoring ambient temperature.
10. An alarm system comprising:
 - a plurality of ambient condition detectors, at least some of the detectors incorporate an audible transducer configured to provide fire related and occupancy information;
 - a control unit, in bi-directional communication with the detectors, the control unit including instructions for monitoring outputs of the audio transducers for establishing information pertaining to the location of individuals in the vicinity of respective transducers.
11. A system as in claim 10 which includes instructions for monitoring detector outputs indicative of audio based fire profiles to establish fire locations and direction of travel.
12. A system as in claim 10 which includes instructions for monitoring transducer outputs indicative of individuals in the vicinity and for presenting graphical images reflective thereof.
13. A system as in claim 12 which includes instructions for tracking movements of individuals in the vicinity of respective transducers.
14. A system as in claim 10 which includes software for evaluating the presence of alarm conditions, at least in part, in response to outputs from the transducers.
15. A system as in claim 10 which includes software for evaluating the presence of alarm conditions, at least in part, in response to thermal conditions in the vicinity of respective detectors.
16. A system as in claim 14 for adjusting at least one operational parameter of some of the detectors in response to audio transducer output.
17. A system as in claim 16 where detector sensitivity is altered in response to audio transducer output.
18. A system as in claim 16 where at least some of the detectors include heat sensors.

19. A system as in claim 16 where the control unit includes instructions for displaying fire development in the vicinity of respective detectors.
20. A method of monitoring a region comprising:
 - evaluating a plurality of audio indicia from the region;
 - determining at least in part in response to the audio indicia, if a fire condition is present somewhere in the region;
 - determining at least in part in response to the audio indicia if the region is occupied.
21. A method as in claim 20 including:
 - providing a graphical display of a developing fire condition in the region.
22. A method as in claim 20 including:
 - adjusting operational parameters of a plurality of ambient condition detectors in the region in response to at least some of the audio indicia.
23. A method as in claim 20 including:
 - sensing thermal conditions in the region and providing a graphical display indicative thereof.
24. A bi-directional communication system comprising:
 - a plurality of ambient condition detectors transmitting indications of respective environmental conditions;
 - at least one device transmitting sound indications from an audible transducer;
 - control circuitry receiving the environmental conditions and sound indications;
 - wherein the control circuitry combines the received indications in connection with the detection of an environmental condition; and
 - indication circuitry for displaying the environmental condition.
25. A bi-directional communication system comprising:
 - a plurality of ambient condition detectors transmitting indications of respective environmental conditions;
 - at least one device transmitting indications from an audible transducer;

control circuitry receiving the environmental condition and indications from the audible transducer;

wherein the control circuitry uses the indications from the transducer for establishing the location of sound generating activities within a region and uses the environmental condition indications for establishing the location of environmental conditions within the region; and

display circuitry for indicating the environmental condition and sound generating activities within the region.

26. A bi-directional communication system for monitoring a region comprising:

a plurality of ambient condition detectors, each detector provides indications of a respective environmental condition;

at least one device transmitting indications from an audible transducer;

a portable sound generator;

control circuitry receiving the environmental conditions and indications from the transducer;

wherein the control circuitry uses the environmental condition indication at least in part to determine the condition of the environment at a location within a region;

wherein the control circuitry uses the indications from the transducer for establishing the location of the sound generator; and

circuitry for displaying the location of environmental conditions and sound generator within the region.